AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing Of Claims:

Please amend the claims as follows:

1.   (Currently Amended) A method for providing access to asynchronous data in a spreadsheet application program, comprising:

receiving a request at said spreadsheet application program to access an asynchronous data element available from an asynchronous data source;

exposing an interface at said spreadsheet application program for receiving a notification that a changed value for said data element is available;

notifying an asynchronous data server that said spreadsheet application program should be notified at said interface in the event that a changed value for said data element is available;

determining whether a notification has been received at said interface indicating that a changed value for said data element is available;

in response to determining that a notification has been received at said interface, said interface at said spreadsheet application program configured to receive said notification when said spreadsheet application program is busy, contacting said asynchronous data server and requesting said changed value for said data element; and

receiving said changed value for said data element from said asynchronous data server at said spreadsheet application program.

2.   (Original) The method of Claim 1, further comprising:

recalculating a spreadsheet that includes said changed data value in response to receiving said changed value for said data element.

3.   (Original) The method of Claim 2, wherein said recalculation is limited to cells contained in said spreadsheet that depend upon said changed data value.

4.   (Original) The method of Claim 1, wherein said notification from said asynchronous data server indicating that a changed value for said data element is available is received asynchronously.

5.   (Original) The method of Claim 1, wherein said request at said spreadsheet application program to access an asynchronous data element is received through a worksheet time data function provided by said spreadsheet application program.

6.   (Original) The method of Claim 1, further comprising:

maintaining a throttle interval value defining when said determination should be made regarding whether a notification has been received at said interface indicating that a changed value for said data element is available.

7.   (Original) The method of Claim 6, further comprising:

determining whether said throttle interval value is set for a manual update mode prior to determining whether a notification has been received at said interface indicating that a changed value for said data element is available; and

in response to determining that said throttle interval value is set for said manual update mode, determining whether a notification has been received at said interface indicating that a changed value for said data element is available only in response to a manual request.

8.   (Original) The method of Claim 6, further comprising:

determining whether said throttle interval value is set for a constant update mode prior to determining whether a notification has been received at said interface indicating that a changed value for said data element is available; and

in response to determining that said throttle interval value is set for said constant update mode, determining whether a notification has been received at said interface indicating that a changed value for said data element is available whenever said spreadsheet application program is idle.

9.   (Original) The method of Claim 6, further comprising:

determining whether said throttle interval value is set to wait a predetermined amount of time prior to determining whether a notification has been received at said interface indicating that a changed value for said data element is available; and

in response to determining that said throttle interval value is set to wait a predetermined amount of time, determining whether a notification has been received at said interface indicating that a changed value for said data element is available only after waiting said predetermined amount of time.

10.   (Original) The method of Claim 1, further comprising:

determining whether a heartbeat value has elapsed since a previous update was received from said asynchronous data server in response to determining that no notification has been received at said interface; and

restarting said asynchronous data server in response to determining that said heartbeat value has elapsed.

11.   (Currently Amended) A computer system for providing access to asynchronous data in a spreadsheet application program, comprising:

a spreadsheet application program operative to receive a request to access an asynchronous data element, to expose an interface at said spreadsheet application program for communicating with an asynchronous data server, and to notify said asynchronous data server that notifications should be provided at said interface in the event that a changed value for said data element is received, said interface at said spreadsheet application program configured to receive said notifications when said spreadsheet application program is busy; and

an asynchronous data server operative to receive said data element from an asynchronous data source, to receive said notification request from said spreadsheet application program, to determine whether a value for said data element has changed, and to asynchronously notify said spreadsheet application program at said interface in response to determining that said data value has changed.

12.   (Original) The computer system of Claim 11, wherein said spreadsheet application program is further operative to receive said notification from said asynchronous data server at said interface and, in response to receiving said notification, to contact said asynchronous data server and request said changed value for said data element.

13.   (Original) The computer system of Claim 12, wherein said spreadsheet application program is further operative to incorporate said changed value for said data element into a spreadsheet and to recalculate said spreadsheet based upon only said changed value.

14.   (Currently Amended) A computer-readable medium comprising computer-executable instructions which, when executed by the computer, cause the computer to:

maintain an interface for use by a spreadsheet application program through which a notification may be received indicating that an asynchronous

data server has an asynchronous data value available for said spreadsheet application program, said interface configured to receive said notification when said spreadsheet application program is busy; and to

maintain an interface at said asynchronous data server for communicating with said spreadsheet application program, said interface maintained at said asynchronous data server supporting a refresh data method which, when called by said spreadsheet application program, causes the asynchronous data server to transmit said asynchronous data value to said spreadsheet application program.

15.   (Original) The computer-readable medium of Claim 14, wherein said interface maintained at said asynchronous data server further supports a connect data method that may be called by said spreadsheet application program to request a new asynchronous data value from said asynchronous data server.

16.   (Original) The computer-readable medium of Claim 14, wherein said interface maintained at said asynchronous data server further supports a disconnect data method that may be called by said spreadsheet application program to inform said asynchronous data server that said spreadsheet application program no longer requires a notification indicating that said asynchronous data server has a data value available for said spreadsheet application program.

17. (Original) The computer-readable medium of Claim 14, wherein said interface maintained at said asynchronous data server further supports a heartbeat method that may be called by said spreadsheet application program to determine whether said asynchronous data server is active.

18. (Original) The computer-readable medium of Claim 14, wherein said interface maintained at said asynchronous data server further supports a server start method that may be called by said spreadsheet application program to start said asynchronous data server, said server start method taking as a parameter a callback object implementing said interface maintained by said spreadsheet application.

19. (Original) The computer-readable medium of Claim 14, wherein said interface maintained at said asynchronous data server further supports a server terminate method that terminates said asynchronous data server in the event that said spreadsheet application program no longer requires data values from said asynchronous data server.

20. (Original) A computer-controlled apparatus capable of performing the method of Claim 1.

21.   (Original) A computer-controlled apparatus capable of performing the method of Claim 5.

22.   (Original) A computer-controlled apparatus capable of performing the method of Claim 6.

23.   (Original) A computer-controlled apparatus capable of performing the method of Claim 7.

24.   (Original) A computer-controlled apparatus capable of performing the method of Claim 8.

25.   (Original) A computer-controlled apparatus capable of performing the method of Claim 9.

26.   (Original) A computer-controlled apparatus capable of performing the method of Claim 10.